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10/824,242	04/14/2004	David H. Hanes	200309081-1	6424

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INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

BRUCKART, BENJAMIN R

ART UNIT	PAPER NUMBER
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2446

NOTIFICATION DATE	DELIVERY MODE
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06/29/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/824,242	Applicant(s) HANES, DAVID H.	
	Examiner BENJAMIN R. BRUCKART	Art Unit 2446	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-14,16-25,27-36,38,40-43 and 45-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-14,16-25,27-36,38,40-43 and 45-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4-13-09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-2, 4-14, 16-25, 27-36, 38, 40-43, 45-48 are presented for examination.

Claims 1, 13, 24, 33, 38 and 43 are independent.

Claims 1, 13, 24, 33, 38 and 43 are amended.

Claims 3, 15, 26, 37, 39, 44 are cancelled.

Applicant is directed to the correspondence information below noting the new examiner of record on the case.

Information Disclosure Statement

The information disclosure statement filed on 4-13-09 has been considered.

Response to Arguments

Applicant's arguments filed in the amendment filed 4/13/09, have been fully considered but they are not persuasive. The reasons are set forth below.

Applicant's invention as claimed:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-14, 16-23, 33-36, 43, 45-48 are rejected under 35 U.S.C. 103(a) as being unpatentable Heil et al. (USPN 6,173,374) (hereinafter Heil) in view of by Miyoshi et al. (USPN 6,901,451) (hereinafter Miyoshi).

Referring to claim 1, Heil discloses an I/O request processing system (i.e. nodes 150), comprising:

a drive command module adapted to receive an I/O request from a client application (i.e. host's upper layers, which contain the software needed to operate the host system) referencing a data block request for processing said I/O request (i.e. I/O redirector software 240) (Figure 2; Figure 3, ref. 400; col. 10, lines 50-65; col. 11, lines 45-52); and

a redirector adapted to automatically and transparently convey the I/O request over a communication network 121 to a remote peripheral device 151 for processing of the I/O request (i.e. the I/O redirector software calls the I/O ship ISM in order to ship request to remote HBA, the host's upper layers 200,300 have no knowledge of the redirection, it merely waits for the request to be fulfilled by the I/O driver) (Figure 3, ref. 450; col. 11, line 45 to col. 12, line 7).

Heil does not explicitly disclose the request referencing a local peripheral address of a peripheral device to execute the I/O request.

In analogous art, Miyoshi discloses another I/O request translation system which receives an I/O request of a local peripheral device (i.e. PCI request references a local PCI address space which is then mapped to a plurality of remote peripheral devices represented by the remote PCI address space) at a module which references a local peripheral address to execute the I/O request (Figure 5; col. 12, lines 25-37; col. 4, lines 30-67),

the redirector is adapted to replace the local peripheral address with an address of the remote peripheral device (i.e. translate the local address space to an address of the remote device) (Miyoshi: Figure 10a, ref. 1003; col. 4, lines 31-36).

It would have been obvious to one of ordinary skill in the art to combine the teaching of Miyoshi with Heil by substituting the block directory subsystem of Heil with the address/node ID translator 309 of Miyoshi in order for the users of Heil to realize the benefits of Miyoshi,

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specifically the ability to transfer local PCI bus transactions from a local node of a PCI bus to a PCI bus on a remote node over a network (Miyoshi: col. 1, lines 55-57).

Referring to claim 2, Heil-Miyoshi discloses the redirector is adapted to correlate the local peripheral address space with an address of the remote peripheral device (i.e. translate local address space to address of remote device) (Miyoshi: Figures 3 and 10a).

Referring to claim 4, Heil-Miyoshi discloses the drive command module calls a bus driver (i.e. I/O shipping ISM 270) to invoke the redirector (i.e. I/O ISM 270 formats the request and sends the request out to the network) (Heil: col. 11, lines 35-45).

Referring to claim 5, Heil-Miyoshi discloses a network server (i.e. remote network PCI adapter 419) adapted to receive the I/O request from the communications network and execute a command (i.e. various PCI commands such as read/write) to process the I/O request via the remote peripheral device (i.e. device 415A-B) (Miyoshi: Figure 4; col. 9, line 57 to col. 10, line 24).

Referring to claim 6, Heil-Miyoshi discloses the I/O request includes a field identifying the local peripheral address (Miyoshi: Figure 5; Figure 6, refs. 615, 620).

Referring to claim 7, Heil-Miyoshi discloses a relational database (i.e. node ID table) to correlate local peripheral address with an address of a remote peripheral device (Miyoshi: Figure 7a, ref. 703; col. 10, lines 50-64).

Referring to claim 8, Heil-Miyoshi discloses formatting a drive command issued by the drive command module for delivery over the communications network to the remote peripheral device (i.e. I/O ISM formats the request into a format to be transmitted over the network) (Heil: col. 11, lines 35-45).

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Referring to claim 9, Heil-Miyoshi discloses the redirector inserting an address associated with the remote peripheral device into the drive command (Heil: col. 11, lines 35-55; Miyoshi: col. 10, lines 50-64).

Referring to claim 10, Heil-Miyoshi discloses the network server receives the I/O request from the network and extracts an address associated with the remote peripheral device (i.e. translation of a destination address from a base address and address offset of a local I/O request) (Miyoshi: col. 10, line 65 to col. 11, line 14).

Referring to claim 11, Heil-Miyoshi discloses the local peripheral address corresponding to a local peripheral address of a host device of a drive command module (i.e. the local address references an address which corresponds to an address space indicating that the request is a remote address request) (Miyoshi: Figure 5).

Referring to claim 12, Heil-Miyoshi discloses the redirector is disposed on the host device (i.e. I/O ISM software is on the node) (Heil: col. 11, lines 35-45).

Claims 13-23 recite essentially the same limitations of claims 1-12 in method form and are rejected for similar reasons as stated above.

Claims 33-37 recite essentially the same limitations of claims 1-12 in means-plus function language and are therefore rejected for similar reasons as stated above.

Claims 43-48 recite essentially the same limitations of claims 1-12 in a computer-readable medium and are therefore rejected for similar reasons as stated above.

Claims 24-25, 27-32, and 38, 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heil-Miyoshi in view of Hewitt (USPN 5,987,541).

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Referring to claim 24, Heil-Miyoshi disclose the invention substantively as described in claims 1-12.

Heil-Miyoshi do not explicitly disclose that the I/O request is to record data to an optical medium, however Miyoshi does disclose that the I/O request can be a write request (see rejections above).

In analogous art, Hewitt discloses another computer system which discloses an optical drive (i.e. CD-ROM drive 132) on a PCI bus 120 (Figure 1).

It would have been obvious to one of ordinary skill in the art to combine the teachings of Heil-Miyoshi to substitute the remote device on the PCI bus 201c-e of Miyoshi with the CD-ROM drive of Hewitt in order to provide the benefits of Hewitt to Heil-Miyoshi, specifically the ability to communicate with an optical drive via a well known bus protocol such as PCI.

Claims 25-32 and 38-42 are rejected for similar reasons as stated above.

REMARKS

Applicant has presented amendments the independent claims that move a previously pending and rejected dependent claim up into independent form with arguments.

The Applicant Argues:

A) the Heil and Miyoshi references do not teach the claimed features of ‘receiving an I/O request from a client application, referencing a local address associated with the remote peripheral device, and replace a local peripheral address associated with the remote peripheral address.’

B) the Heil reference does not teach ‘automatically and transparent to the client application’

In response, the examiner respectfully submits:

The prior art teaches the invention as claimed and therefore the examiner maintains the rejection.

Regarding A) Applicant argues that the Heil and Miyoshi references do not disclose the local peripheral address for processing a remote I/O request.

The Examiner disagrees. As shown in Figure 5 of Miyoshi, the local address space 505 has a particular address space for a remote request (i.e. Node ID 0). This can be understood as a local address on the transmitting side. It is then translated/mapped to a remote node ID 515 by translating the local node ID and the address offset into a destination node ID and a request address (see Figure 6, ref. 723). This is then mapped to a remote base address 725 and a remote address offset 727. By this rationale, it is clearly shown that a local PCI address is mapped to a remote peripheral address and therefore the rejection is maintained. The Heil reference is used to show the client application sending the request (higher host level).

Regarding B) Applicant argues, in substance, that since Heil discloses that a connection to the remote HBA must occur before the remote request, it does not "automatically and transparent to the client application" send the request to a remote peripheral device. The Examiner disagrees. While the Examiner does not dispute that the connection must be established, this has nothing to do whether or not the client application does not know about the request being remote. The client application just sends the request, it does not know or care where this request is fulfilled. This is the job of the I/O redirector software 240, not the client application (i.e. the higher host layers 200) (see Figure 2). The request process is the same (as seen from the higher host layers) for local requests as they are for remote requests. By this rationale, the redirection is completely transparent to the client application and therefore the rejection is maintained. It is automatically performed because it does not require intervention by the requesting application. The redirector performs the steps.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin R. Bruckart whose telephone number is (571) 272-3982. The examiner can normally be reached on 9:00-5:30PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Pwu can be reached on (571) 272-6798. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Benjamin R Bruckart
Examiner
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/Benjamin R Bruckart/

Primary Examiner, Art Unit 2446